

Meeting Summary Draft

Joint Meeting of Great Salt Lake Water Quality Steering Committee and Science Panel

November 30, 2007, 9 a.m. to 1:30 p.m.

Department of Environmental Quality, Room 101, 168 North 1950 West, Salt Lake City, Utah

Attendance

Steering Committee Members and Alternates:

Dave Grierson
Clay Perschon
Karen Hamilton
Nathan Darnall
Dave Naftz
Don Leonard
Jim Huizingh
Kelly Payne
Richard Bay
Leland Myers
Maunsel Pearce
Chris Montague
Richard West
Delane McGarvey
Walt Baker

Others Present:

Lynn de Freitas, Friends of Great Salt Lake
Mark Atencio, Jordan Valley WCD
John Luft, Division of Wildlife Resources
Joy Emory
Bassam Usta, Morton Salt
Bruce Waddell, Nature Conservancy
Ken O'Brien, Salt Lake City School District
Holly Godsey, U of U WEST Program
Jeff DenBleyker, CH2MHill
Harry Ohlendorf, CH2MHill
Gary Santolo, CH2MHill
Earl Byron, CH2MHill
John Whitehead, DWQ
Harry Judd, DWQ
Ying-Ying Macauley, DWQ
Jodi Gardberg, DWQ

Science Panel Members:

Bill Moellmer
Theron Miller
Bill Wuerthele
Anne Fairbrother
Joseph Skorupa
Theresa Presser
Brad Marden
Bill J. Adams
Don Hayes

Call to Order

Walt Baker called the meeting to order at 9 a.m. He reported that Chris Montague will replace Bob Adler for the remainder of the work. Bob's work is going to be taking him out of the country for a while.

Approval of the September Meeting Summary

Lynn de Freitas requested that the spelling of her name on page 3 be corrected. The minutes of September 11, 2007 were accepted with that change.

Financial Status Report

Walt Baker discussed the content of the handout "Great Salt Lake Selenium Studies Disbursement Journal as of November 16, 2007" and drew the group's attention to the current contingency of \$15K. This number does not reflect an anticipated expense of \$151K for CH2M Hill's project management in 2008. The Division of Water Quality will provide a grant of \$150,000 to make up for this shortfall. However, if the project schedule is pushed back a couple of months, DWQ anticipates additional project management costs but does not have a

handle on what the costs will be. He anticipated there may be a bit of a cushion, but stressed that there was not a great deal of fat in this budget.

WEST Program Presentation

Holly Godsey presented the power point presentation, which is posted at:
http://www.deq.utah.gov/Issues/GSL_WQSC/prior_meetings.htm

Holly told the Committee that WEST was in the second year of its Great Salt Lake science projects for public school children and that more trips are scheduled for the 2008 spring. She thanked the Steering Committee for its support and contribution. Ken O'Brien commented on the Salt Lake School District involvement and the positive impacts of WEST program on many ESL students.

Joint Discussion of Steering Committee and Science Panel

Bill Moellmer introduced members of the Science Panel and Jeff DenBleyker of CH2M Hill who provides the overall project management for the GSL selenium studies. DenBleyker indicated there were a number of people who had been involved in collecting, evaluating, and developing the information to be contained in the Science Panel's reports. Over the last couple of days, all the information has been pulled together into a tool that can be used to determine a water quality standard for selenium.

Denblyker walked the Committee through his power point presentation, which is posted at:

http://www.deq.utah.gov/Issues/GSL_WQSC/docs/STG_COM_Selenium_Program_Update_113007.pdf

Jeff stressed that the data reflected on some of the tables is still preliminary and may be slightly different when in its final form. He concluded his presentation by summarizing where the Science Panel planned to take from this point:

- Request that the schedule be extended to allow a thorough review of materials
- Review all reports with a goal to release comments on all by the end of January. Reports will be forwarded to the Steering Committee as they are completed.
- Finalize a recommendation by May 1st and present that recommendation in a joint meeting between the Science Panel and the Steering Committee on May 2nd.

After the presentation, the following questions were raised:

Walt Baker asked about the EC value relative to developing the water quality standard. Bill Wuerthele explained that the Panel first looked at a standard based on a wildlife endpoint. EPA has not yet developed guidance on wildlife criteria and questions kept coming up that EPA has not yet addressed. The closest thing they could find was the Great Lake Initiative. Criteria developed for that initiative only applies to the Great Lakes, and "No observed effects" was used as the basis for the wildlife endpoint criteria. "No observed effect concentrations" (NOEC) varied and seemed similar to an EC10 value. Wuerthele noted that EPA has established precedence with NOEC on the Great Lake Initiative. His position is that an EC10 value is appropriate in this instance. EC10 is centered on a confidence interval and, since this is a risk management decision, the State has some flexibility on the desired level of protection. He explained that EPA has also recently used EC20 and he has talked to several people about this question. It turns out that EC20 was not an official EPA position. It was chosen in particular situations because data would not allow them to go lower. For the Great Salt Lake, using EC10 would help set a desired level of protection.

Leland Myers asked about the critical end point in establishing the standard. Bill Wuerthele stated that the critical factor is hatchability. Joseph Skorupa noted there was a difference between what drives toxicity: constant dietary exposure versus acute water contact exposure. The Science Panel felt the dietary exposure posed the greatest risk. When toxicity is tissue mediated, EPA looks at it as a constant exposure. Even if the

permit limit would be based on water column standard, the water column standard will be derived from diet exposure.

In response to a question by Kelly Payne, Jeff DenBleyker explained that, in driving toward a water column standard, there is still uncertainty about water to food transfer. The question to be answered was, would it make sense to set the standard based on a protective diet rather than protective water column. Bill Wuerthele noted that while a tissue based value could be set, there would still be a need to translate that to a water column value so a permit could be written. Kelly Payne wondered if the standard could be set so that it would allow monitoring of diet instead of water column concentration. He suggested writing permits to reflect the load rather than the concentration and then monitor the selenium level of the brine shrimp. If selenium levels reached a critical level, then DWQ could require that loading be ratcheted down.

Bill Wuerthele explained that when the Science Panel first started talking about this issue, an approach of compliance monitoring and a number were suggested. Compliance monitoring is a bad term, he said, because what we are really thinking about is surveillance monitoring. The problem with the compliance monitoring approach is that it returns us to where we were before the Clean Water Act was enacted. It moved things back into an endless argument: Is it an issue? Whose issue is it? Bill Wuerthele noted that a water column standard is needed to set permit limits and surveillance monitoring is needed.

Maunsel Pearce stressed that setting the standard was an historic first which would help ensure the health of the Great Salt Lake ecosystems in the future. He said the groups he represented were concerned about monitoring all inputs into and actions to reduce selenium levels and offer protection for all wildlife into the future. To do that, a water quality standard was needed in order to protect aquatic life.

Leland Myers raised the issues of implementing a water quality standard, such as: How to determine mixing zones? How to define end of the pipe concentration to meet the end of the lake standard that you want to achieve?

Clay Pershon said that one challenge with looking at protecting the Lake and biota in the long term was that the selenium concentrations vary significantly regardless of the loading, and the Science Panel had only collected 15 months worth of data. Current loading level will result in vastly different concentrations if the lake volume or the lake water level changes. He wondered how this would impact biota values and what options for remediation there would be if the selenium was already there.

In response to a question by Chris Montague on the relationship between the Great Lakes Initiative and the Great Salt Lake Study, Bill Wuerthele stressed that that “no observed effects concentration” is not the same as “no effect value.” He added that NOEC is subject to Type 2 error. Bill Adams explained that one consideration that should be kept in mind is that if should the group decide it wants to extrapolate below EC10, they may run into issues with some compounds because relationships were not always linear. Clay Pershon asked about the relationship between the desired no effect and EC10. Adams said in this case, it equated to a 10% observable effect on reproductive capabilities. He added that the only way to guarantee no effect is to set the standard at zero. Joe Skorupa disagreed, noting the Lake does seem to have some finite ability to absorb pollutants without effect.

Mark Atencio wondered about the future, should the Great Salt Lake water level recede. Walt Baker noted modeling was only based on the statistical period which was being examined. Lake levels would be variable because the Great Salt Lake is dynamic. There would be a need for vigilance. Adams said that there is some historical data available but the Science Panel could not answer what would happen if the Lake level goes down. Walt Baker said it was fortunate that the study was done on the heels of a drought rather than during a flood year.

Kelly Payne asked if the group had any plan to address the data gaps, such as variability associated with volatilization, and whether the group would be able to get resolution on some of the issues so that a robust model could be determined. Bill Moellmer felt confident a number could be arrived at, explaining that going to a geometric mean helped level out the variables. The name of the game, he said, was to run a sensitivity analysis with the variability to see which components affect the model the most. He told the group that the geometric mean model at this point indicated that the selenium load into the Great Salt Lake from the large tributaries could be increased by a factor of five before the predicted selenium concentration would become close to the EC10 value.

Walt Baker pointed out that doing nothing because there was not enough data was not an option. The Clean Water Act required that water quality standards be revisited every three years. As more information became available, the standard could change. Kelly Payne noted that some dischargers were worried about the “anti-backsliding” effect, that if the initial water quality number was later found to be too low, it would be difficult to relax the standard in the future. Walt Baker replied that the process would be dynamic. Theresa Presser said the Science Panel has only the static model and the model did not have a feedback loop of lake level changes. Bill Moellmer said he could envision a duo monitoring program, i.e., monitoring selenium concentrations of both water column and brine shrimps. An advantage they had is that birds are opportunistic and will eat whatever is the most available. The Steering Committee and Science Panel members discussed the issues related to monitoring dietary selenium levels including what diet to monitor and where to collect the samples.

Lynn de Freitas told the group she was impressed with the process and with the caliber of people who have been involved. She recognized that there would be an opportunity for the public to be involved down the line. She asked if there was a way, through the process, to take into consideration sensitivity/stressors that can't be determined today but that may be in 10 years using new technologies; how will variables yet to be determined be incorporated; not to let the model drive the decision. She noted that the regulator regime may change and let the community to use the model for developing the standard. Bill Moellmer said that once a standard was set, it was important to test over time to see how things are moving. Anne Fairbrother reminded that the Science Panel was looking at a fate and transport model of just selenium; many other factors, such as mercury, were not closely studied; this was a piece of a larger model and not an ecosystem model for the entire Great Salt Lake; future projection of this model is beyond the charge of the Science Panel and will need a lot of work. David Naftz said results would be biased if the group did not look at cumulative loading rather than only industrial loads. There was a need to be sensitive to that fact when designing monitoring for adaptive management.

Karen Hamilton raised the issue of increase seen in this fall's monitoring. There seemed to be a disconnection between selenium leaving the Great Salt Lake versus coming in. Jeff DenBleyker said the discussion over the past two days had been an attempt for the group to get its arms around mass balance. Atmospheric deposition could be a significant selenium source. There was some data showing that selenium was increasing. As the Panel moves forward with mass balance, the ranges of each component will be bracketed. The model user could then do sensitivity balancing.

Joe Skorupa stressed that current results represent a narrow snapshot in time. That snapshot clearly shows an increasing trend. Bill Adams pointed out, however, that the end points of the trend are not showing levels that are unprecedented, i.e. they are within the range. There are two possibilities: either they were looking at a system that oscillates or they are seeing part of a trend. He personally did not take the data to either validate or not validate the mass balance model. The most important things were that the monitoring gauges continue operation and that there is a broader picture of the data. Leland Myers said the data would only be validated as more data is collected. There was a need to arrive at an ongoing funding mechanism for this. He also pointed out that 1,500 kg a year of selenium is unaccounted for and that the unknown groundwater influxes have not been captured yet.

Reports would be coming out over the next couple of months. Jeff DenBleyker said he would be prioritizing completion of each report based on the information needed to keep the project moving forward. Deadlines would be provided to the Science Panel to get the reports done. The Steering Committee would begin to see things roll. The reports will be completed by the end of January.

New Time Frame

Walt Baker and the members of Steering Committee and Science Panel discussed the new schedule of future meetings and milestones:

December 20, 2007 – Science Panel Conference Call (10 a.m., CHB Room 335)
January 24, 2008 – Science Panel Conference Call (10 a.m., CHB Room 336)
End of January, 2008 – Reports and comments become available for review
February 20 and 21, 2008 – Two-day Science Panel Meeting (8 to 5, DEQ Room 201)
February 22, 2008 – Joint Meeting of the Steering Committee and Science Panel (9 to 1:30, DEQ Room 101)
End of February, 2008 – Steering Committee will have received all reports
March 27, 2008 – Science Panel Conference Call (10 a.m., CHB Room 336)
April 30 and May 1, 2008 – Two-day Science Panel Meeting (8 to 5, CHB Room 125)
May 2, 2008 – Joint Meeting of the Steering Committee and Science Panel to consider recommendation (9 to 2, CHB Room 125)
May 12-16, 2007 – The International Great Salt Lake Research Conference in SLC
May 20, 2008 – Steering Committee Meeting with the stakeholders to seek public comments
May 29, 2008 – Steering Committee meeting to finalize recommendation to DWQ
June 20, 2008 – Water Quality Board considers recommendation from DWQ
July of 2008 – Formal Public Comment
August 17, 2008 – Water Quality Board finalizes standard

Farmington Bay Selenium Study

Don Hayes presented “Selenium Fate and Transport in Great Salt Lake Wetlands.” His presentation is posted on the website at:

http://www.deq.utah.gov/Issues/GSL_WQSC/docs/Selenium_Fate_and_Transport_in_Great_Salt_Lake_Wetlands_113007.swf

Next Steps & Other Issues

Walt Baker informed the group that once the selenium work was completed, the division is interested in looking at other issues related to the Great Salt Lake. Work was currently planned or underway to look closely at nutrients, wetlands, and mercury. DWQ has decided to use a watershed approach, and created a full-time GSL coordinator position to start the investigative work on a GSL watershed group. He was hopeful that the Great Salt Lake Watershed would be a springboard into the formation of a Great Salt Lake Commission. Maunsel Pearce felt it was important to have a vision of what authorities the Commission might have so that short-term decisions could be made with a long-term vision. Baker agreed. He explained that he didn't know what the Commission make-up might be but, looking at the Utah Lake Commission, he acknowledged that group was largely political and left out large segments of interest groups. He felt it was important to bring those groups to the table as well, similar to the way the Steering Committee was pulled together. Chris Montague felt that careful and thoughtful consideration should be given to the Commission make-up and authority so that the maximum benefit could ultimately be obtained from its work. There was a need for an ability to address the reactive things that come up as well as to address the long-term sustainability of the Great Salt Lake.

Walter Baker explained that another challenge for the short-term was coming up with a funding mechanism. The Water Quality SRF loan program currently has anticipates a total of \$80 million for point source projects; \$8 million of which is available for studies, outreach and educational activities. His hope was to tap into some of those finds and use them as seed money to continue this work. Richard Bay felt the direction discussed was very good. He agreed with Chris Montague's assessment and stressed that for the Commission to be successful, it needed to include interest groups as well as buy-in from the political communities.

Bruce Waddell raised the issue of the pending loss of the gauging stations. He felt that ongoing monitoring of the flows into Great Salt Lake was crucial and wondered if there was a way to hold onto those stations. Walt Baker said DWQ needs to look at the costs associated with continuing those stations. He agreed the work could ill-afford to lose the momentum gained and was interested in seeing what it would take to continue to operate them. Walt noted that Division of Forestry, Fire, and State Lands has \$100,000 each year from the legislature for Great Salt Lake, and there is a possibility to tap to that money for maintaining these gauging stations.

Walt Baker raised the issue of the STORET database going away and mentioned that DWQ would be collaborating together with other agencies to form a database for Great Salt Lake data.

Maunsel Pearce and Dave Naftz encouraged participation and sponsorship at the upcoming International Conference on Salt Lake Research to be held in Salt Lake City May 12-16, 2008. More information is available at: <http://www.isslr.org/biblio/ISSLR%20X%20Flyer%201.pdf>

Next Meeting

The next joint meeting of Steering Committee and Science Panel is on Friday February 22, 2008, at 9 a.m. at DEQ Building Room 101. The GSL Science Panel has a two-day meeting on February 20 and 21, 2008. A working lunch will be provided immediately following the joint meeting.